

CONNECTION[®] to the TEKS Developmental Series[™]

Math
4

Reporting Category 1
teacher
v2



KAMICO[®]
Instructional Media, Inc.

CONNECTION[®] to the TEKS

Math **4** Reporting Category 1 teacher

Developmental Series[™]

XXVI/i/MMXXVI

Version 2



KAMICO[®]

Instructional Media, Inc.

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KAMICO® Instructional Media, Inc.
CONNECTION® to the TEKS
Introduction

KAMICO® Instructional Media's program is validated by scientifically based research. **STAAR CONNECTION™ Diagnostic Series™** and **CONNECTION® to the TEKS Developmental Series™** can be used in tandem to ensure mastery of Texas reporting categories and TEKS. The *Diagnostic Series™* consists of a bank of assessments. Each assessment covers a mixture of reporting categories and TEKS. This research-based format provides continual reinforcement for and ensures retention of mastered concepts. To take full advantage of this series, administer an assessment to students. After they have completed the assessment, use it as an instructional tool. Go over each item with the class, discussing all correct and incorrect answers. Then, use the assessment as a diagnostic tool to determine a standard for which students need remediation. Find that standard in the *Developmental Series™*.

Each book in the **CONNECTION® to the TEKS Developmental Series™** consists of instructional activities and assessments over isolated TEKS to allow for the remediation and development of specific TEKS. For every TEKS, there is at least one individual or group activity. The activities provide a fun, challenging, yet nonthreatening, way to develop mastery of the TEKS. In addition to these activities, each *Developmental Series™* book contains assessments on isolated TEKS to be used to identify mastery or the need for further skill development or reinforcement. Continue to alternate between the **STAAR CONNECTION™ Diagnostic Series™** and the **CONNECTION® to the TEKS Developmental Series™**.

KAMICO's **Game Gallery®** consists of over 300 board games in English and in Spanish. These games create a game-based learning environment to facilitate additional reinforcement of TEKS.

KAMICO® Instructional Media, Inc., supports efforts to ensure adequate yearly progress and eliminate surprises in high-stakes test results.

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Grade 4 Mathematics Reporting Categories and Related TEKS

Reporting Category 1:

Numerical Representations and Relationships

The student will demonstrate an understanding of how to represent and manipulate numbers and expressions.

(4.2)	Number and operations. The student applies mathematical process standards to represent, compare, and order whole numbers and decimals and understand relationships related to place value. The student is expected to	TE	SE
(A)	interpret the value of each place-value position as 10 times the position to the right and as one-tenth of the value of the place to its left; Supporting Standard		
	Values of Place Value 9		
	Assessment 24		5
(B)	represent the value of the digit in whole numbers through 1,000,000,000 and decimals to the hundredths using expanded notation and numerals; Readiness Standard		
	Match Those Numbers! 29		
	Assessment 55		10
(C)	compare and order whole numbers to 1,000,000,000 and represent comparisons using the symbols $>$, $<$, or $=$; Supporting Standard		
	Comparison Face-Off 58		
	Assessment 65		13
(D)	round whole numbers to a given place value through the hundred thousands place; Supporting Standard		
	Rounding Cups 71		
	Assessment 75		19
(E)	represent decimals, including tenths and hundredths, using concrete and visual models and money; Supporting Standard		
	Deriving Decimals 79		
	I Have/Who Has 85		
	Assessment 96		23

(F)	compare and order decimals using concrete and visual models to the hundredths; Supporting Standard	TE	SE
	Fun Fact Comparisons	101	
	Marathon Mice	103	
	Assessment	126	28
(G)	relate decimals to fractions that name tenths and hundredths; Readiness Standard		
	Fractions and Decimals	132	
	Assessment	139	34
(H)	determine the corresponding decimal to the tenths or hundredths place of a specified point on a number line. Supporting Standard		
	Points in Space	143	
	Assessment	152	38
(4.3)	Number and operations. The student applies mathematical process standards to represent and generate fractions to solve problems. The student is expected to		
(A)	represent a fraction a/b as a sum of fractions $1/b$, where a and b are whole numbers and $b > 0$, including when $a > b$; Supporting Standard		
	Fruit Fractions	156	
	Assessment	165	42
(B)	decompose a fraction in more than one way into a sum of fractions with the same denominator using concrete and pictorial models and recording results with symbolic representations; Supporting Standard		
	Decomposing Fractions	169	
	Assessment	180	46
(C)	determine if two given fractions are equivalent using a variety of methods; Supporting Standard		
	Equivalent Fractions	186	
	Assessment	202	52
(D)	compare two fractions with different numerators and different denominators and represent the comparison using the symbols $>$, $=$, or $<$; Readiness Standard		
	Fraction Fever	208	
	Fraction Inspection	217	
	Assessment	230	58

	TE	SE
(G) represent fractions and decimals to the tenths or hundredths as distances from zero on a number line.		
<i>Supporting Standard</i>		
Point the Way!	235	
Match Point	237	
Assessment	241	63
Reporting Category 1 Answer Key	246	
Student Bubble Answer Sheet	252	188
Bubble Answer Key	254	
Grade 4 Mathematics Reference Materials	256	193
Student Grid	258	195

Reporting Category 1: Numerical Representations and Relationships
TEKS 4.2B

Represent the value of the digit in whole numbers through 1,000,000,000 and decimals to the hundredths using expanded notation and numerals.

ACTIVITY
Match Those Numbers!

Materials

For each pair of students:

Match Those Numbers! activity cards

Match Those Numbers! spinner

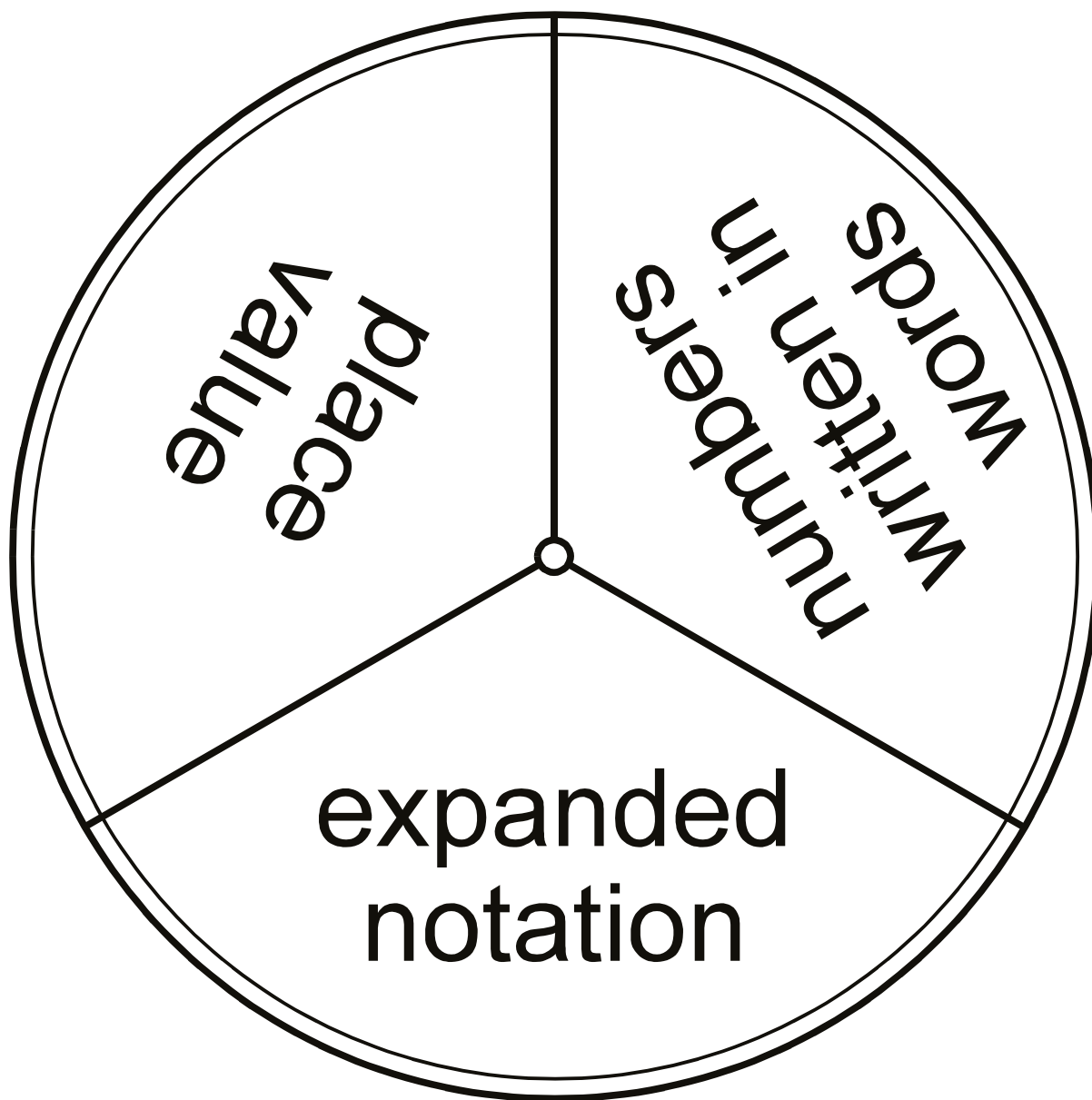


Procedure

Assign students to pairs. Students sit side by side. Distribute the *Match Those Numbers!* activity cards. Students place all the number cards in a pile faceup. Then, they separate the expanded notation cards and place them in an array. Next, they separate the numbers that are written in words cards and place them in an array. Last, they place the place-value cards in an array.

Player A takes the top number card. Then (s)he spins the arrow on the spinner. If the arrow lands on *numbers written in words*, (s)he looks at the numbers written in words array and identifies the card that corresponds to his or her number. If the arrow lands on *expanded notation*, (s)he looks at the expanded notation cards array and identifies the card that corresponds to his or her number. If the arrow lands on *place value*, (s)he looks at the place-value cards array and identifies the card that corresponds to his or her number. If (s)he is correct, (s)he puts the cards aside. Play passes to the next player. When all cards are matched, students count their matches. The student with the greater number of matches is the winner.

Match Those Numbers! spinner



Match Those Numbers! activity cards

1,075,641,327.45



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one billion,
seventy-five million,
six hundred forty-one thousand,
three hundred twenty-seven
and forty-five hundredths



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$$\begin{aligned} &(1 \times 1,000,000,000) + (7 \times 10,000,000) \\ &+ (5 \times 1,000,000) + (6 \times 100,000) \\ &+ (4 \times 10,000) + (1 \times 1,000) \\ &+ (3 \times 100) + (2 \times 10) + (7 \times 1) \\ &+ (4 \times \frac{1}{10}) + (5 \times \frac{1}{100}) \end{aligned}$$



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The value of the 2 is 20.



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1,602,532,000.8



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one billion,
six hundred two million,
five hundred thirty-two thousand
and eight tenths



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$$\begin{aligned} &(1 \times 1,000,000,000) \\ &+ (6 \times 100,000,000) + (2 \times 1,000,000) \\ &+ (5 \times 100,000) + (3 \times 10,000) \\ &+ (2 \times 1,000) + (8 \times \frac{1}{10}) \end{aligned}$$



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The value of the 3 is 30,000.



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1,000,284,347.62



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one billion,
two hundred eighty-four thousand,
three hundred forty-seven
and sixty-two hundredths



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$$\begin{aligned} &(1 \times 1,000,000,000) + (2 \times 100,000) \\ &\quad + (8 \times 10,000) + (4 \times 1,000) \\ &\quad + (3 \times 100) + (4 \times 10) + (7 \times 1) \\ &\quad + (6 \times \frac{1}{10}) + (2 \times \frac{1}{100}) \end{aligned}$$



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The value of the 7 is 7.



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1,024,312,000



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one billion,
twenty-four million,
three hundred twelve thousand



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$$\begin{aligned} &(1 \times 1,000,000,000) + (2 \times 10,000,000) \\ &\quad + (4 \times 1,000,000) + (3 \times 100,000) \\ &\quad + (1 \times 10,000) + (2 \times 1,000) \end{aligned}$$



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The value of the 4 is 4,000,000.



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436,570,025



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four hundred thirty-six million,
five hundred seventy thousand,
twenty-five



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$$(4 \times 100,000,000) + (3 \times 10,000,000) \\ + (6 \times 1,000,000) + (5 \times 100,000) \\ + (7 \times 10,000) + (2 \times 10) + (5 \times 1)$$



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The value of the 3 is 30,000,000.



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740,526,398.98



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seven hundred forty million,
five hundred twenty-six thousand,
three hundred ninety-eight
and ninety-eight hundredths



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$$(7 \times 100,000,000) + (4 \times 10,000,000) \\ + (5 \times 100,000) + (2 \times 10,000) \\ + (6 \times 1,000) + (3 \times 100) \\ + (9 \times 10) + (8 \times 1) \\ + (9 \times \frac{1}{10}) + (8 \times \frac{1}{100})$$



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The value of the 5 is 500,000.



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593,406,182.4



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five hundred ninety-three million,
four hundred six thousand,
one hundred eighty-two
and four tenths



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$$\begin{aligned} &(5 \times 100,000,000) + (9 \times 10,000,000) \\ &+ (3 \times 1,000,000) + (4 \times 100,000) \\ &+ (6 \times 1,000) + (1 \times 100) \\ &+ (8 \times 10) + (2 \times 1) \\ &+ (4 \times \frac{1}{10}) \end{aligned}$$



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The value of the 5 is 500,000,000.



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514,842,307.02



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five hundred fourteen million,
eight hundred forty-two thousand,
three hundred seven
and two hundredths



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$$\begin{aligned} &(5 \times 100,000,000) + (1 \times 10,000,000) \\ &+ (4 \times 1,000,000) + (8 \times 100,000) \\ &+ (4 \times 10,000) + (2 \times 1,000) \\ &+ (3 \times 100) + (7 \times 1) \\ &+ (2 \times \frac{1}{100}) \end{aligned}$$



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The value of the 8 is 800,000.



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856,052,931.06



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eight hundred fifty-six million,
fifty-two thousand,
nine hundred thirty-one
and six hundredths



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$$\begin{aligned} &(8 \times 100,000,000) + (5 \times 10,000,000) \\ &+ (6 \times 1,000,000) + (5 \times 10,000) \\ &+ (2 \times 1,000) + (9 \times 100) \\ &+ (3 \times 10) + (1 \times 1) \\ &+ (6 \times \frac{1}{100}) \end{aligned}$$



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The value of the 9 is 900.



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70,816,533.4



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seventy million,
eight hundred sixteen thousand,
five hundred thirty-three
and four tenths



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$$\begin{aligned} &(7 \times 10,000,000) + (8 \times 100,000) \\ &+ (1 \times 10,000) + (6 \times 1,000) \\ &+ (5 \times 100) + (3 \times 10) + (3 \times 1) \\ &+ (4 \times \frac{1}{10}) \end{aligned}$$



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The value of the 1 is 10,000.



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18,302,974.2



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eighteen million,
three hundred two thousand,
nine hundred seventy-four
and two tenths



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$$\begin{aligned} &(1 \times 10,000,000) + (8 \times 1,000,000) \\ &+ (3 \times 100,000) + (2 \times 1,000) \\ &+ (9 \times 100) + (7 \times 10) + (4 \times 1) \\ &+ (2 \times \frac{1}{10}) \end{aligned}$$



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The value of the 8 is 8,000,000.



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49,004,286.82



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forty-nine million,
four thousand,
two hundred eighty-six
and eighty-two hundredths



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$$\begin{aligned} &(4 \times 10,000,000) + (9 \times 1,000,000) \\ &+ (4 \times 1,000) + (2 \times 100) \\ &+ (8 \times 10) + (6 \times 1) \\ &+ (8 \times \frac{1}{10}) + (2 \times \frac{1}{100}) \end{aligned}$$



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The value of the 6 is 6.



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8,519,372.06



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eight million,
five hundred nineteen thousand,
three hundred seventy-two
and six hundredths



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$$\begin{aligned} &(8 \times 1,000,000) + (5 \times 100,000) \\ &+ (1 \times 10,000) + (9 \times 1,000) \\ &+ (3 \times 100) + (7 \times 10) + (2 \times 1) \\ &+ (6 \times \frac{1}{100}) \end{aligned}$$



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The value of the 7 is 70.



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2,300,456.5



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two million,
three hundred thousand,
four hundred fifty-six
and five tenths



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$$\begin{aligned} &(2 \times 1,000,000) + (3 \times 100,000) \\ &+ (4 \times 100) + (5 \times 10) + (6 \times 1) \\ &+ (5 \times \frac{1}{10}) \end{aligned}$$



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The value of the 3 is 300,000.



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7,412,680.03



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seven million,
four hundred twelve thousand,
six hundred eighty
and three hundredths



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$$\begin{aligned} &(7 \times 1,000,000) + (4 \times 100,000) \\ &+ (1 \times 10,000) + (2 \times 1,000) \\ &+ (6 \times 100) + (8 \times 10) \\ &+ (3 \times \frac{1}{100}) \end{aligned}$$



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The value of the 2 is 2,000.



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3,250,064.8



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three million,
two hundred fifty thousand,
sixty- four
and eight tenths



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$$\begin{aligned} &(3 \times 1,000,000) + (2 \times 100,000) \\ &+ (5 \times 10,000) + (6 \times 10) + (4 \times 1) \\ &+ (8 \times \frac{1}{10}) \end{aligned}$$



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The value of the 5 is 50,000.



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245,072



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two hundred forty-five thousand,
seventy-two



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$$(2 \times 100,000) + (4 \times 10,000) \\ + (5 \times 1,000) + (7 \times 10) + (2 \times 1)$$



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The value of the 4 is 40,000.



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325,672.23



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three hundred twenty-five thousand,
six hundred seventy-two
and twenty-three hundredths



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$$(3 \times 100,000) + (2 \times 10,000) \\ + (5 \times 1,000) + (6 \times 100) \\ + (7 \times 10) + (2 \times 1) \\ + (2 \times \frac{1}{10}) + (3 \times \frac{1}{100})$$



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The value of the 7 is 70.



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918,003



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nine hundred eighteen thousand,
three



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$$(9 \times 100,000) + (1 \times 10,000) \\ + (8 \times 1,000) + (3 \times 1)$$



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The value of the 3 is 3.



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500,891.09



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five hundred thousand,
eight hundred ninety-one
and nine hundredths



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$$(5 \times 100,000) + (8 \times 100) \\ + (9 \times 10) + (1 \times 1) \\ + (9 \times \frac{1}{100})$$



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The value of the 5 is 500,000.



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50,385.3



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fifty thousand,
three hundred eighty-five
and three tenths



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$$\begin{aligned} &(5 \times 10,000) + (3 \times 100) \\ &+ (8 \times 10) + (5 \times 1) \\ &+ (3 \times \frac{1}{10}) \end{aligned}$$



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The value of the 8 is 80.



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42,129



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forty-two thousand,
one hundred twenty-nine



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$$\begin{aligned} &(4 \times 10,000) + (2 \times 1,000) + (1 \times 100) \\ &+ (2 \times 10) + (9 \times 1) \end{aligned}$$



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The value of the 1 is 100.



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36,391



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thirty-six thousand,
three hundred ninety-one



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$$(3 \times 10,000) + (6 \times 1,000) + (3 \times 100) \\ + (9 \times 10) + (1 \times 1)$$



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The value of the 6 is 6,000.



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92,511



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ninety-two thousand,
five hundred eleven



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$$(9 \times 10,000) + (2 \times 1,000) + (5 \times 100) \\ + (1 \times 10) + (1 \times 1)$$



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The value of the 2 is 2,000.



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4,320.00



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four thousand,
three hundred twenty



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$$(4 \times 1,000) + (3 \times 100) + (2 \times 10)$$



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The value of the 3 is 300.



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9,214.04



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nine thousand,
two hundred fourteen
and four hundredths



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$$\begin{aligned} &(9 \times 1,000) + (2 \times 100) \\ &+ (1 \times 10) + (4 \times 1) \\ &+ (4 \times \frac{1}{100}) \end{aligned}$$



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The value of the 9 is 9,000.



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3,010



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three thousand, ten



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$$(3 \times 1,000) + (1 \times 10)$$



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The value of the 1 is 10.



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2,100



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two thousand, one hundred



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$$(2 \times 1,000) + (1 \times 100)$$



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The value of the 1 is 100.



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902



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nine hundred two



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$$(9 \times 100) + (2 \times 1)$$



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The value of the 2 is 2.



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920



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nine hundred twenty



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$$(9 \times 100) + (2 \times 10)$$



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The value of the 2 is 20.



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850.01



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eight hundred fifty
and one hundredth



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$$(8 \times 100) + (5 \times 10) \\ + (1 \times \frac{1}{100})$$



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The value of the 5 is 50.



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805.1



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eight hundred five
and one tenth



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$$(8 \times 100) + (5 \times 1) \\ + (1 \times \frac{1}{10})$$



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The value of the 5 is 5.



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98



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ninety-eight



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$$(9 \times 10) + (8 \times 1)$$



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The value of the 9 is 90.



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72.43



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seventy-two
and forty-three hundredths



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$$(7 \times 10) + (2 \times 1) \\ + (4 \times \frac{1}{10}) + (3 \times \frac{1}{100})$$



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The value of the 7 is 70.



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44



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forty-four



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$$(4 \times 10) + (4 \times 1)$$



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The value of the 4
in the ones place is 4.



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60.07



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sixty and
seven hundredths



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$$(6 \times 10) + (7 \times \frac{1}{100})$$



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The value of the 6 is 60.



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5



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five



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(5×1)



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The value of the 5 is 5.



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8.2



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eight and
two tenths



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$(8 \times 1) + (2 \times \frac{1}{10})$



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The value of the 8 is 8.



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9



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nine



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(9×1)



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The value of the 9 is 9.



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0



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zero



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(0×1)



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The value of the 0 is 0.



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305.2



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three hundred five and two tenths



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$$(3 \times 100) + (5 \times 1) + (2 \times \frac{1}{10})$$



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The value of the 2 is 0.2.



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406,702.4



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four hundred six thousand,
seven hundred two and four tenths



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$$(4 \times 100,000) + (6 \times 1,000) \\ + (7 \times 100) + (2 \times 1) + (4 \times \frac{1}{10})$$



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The value of the 7 is 700.



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560,008.5



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five hundred sixty thousand,
eight and five tenths



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$$(5 \times 100,000) + (6 \times 10,000) \\ + (8 \times 1) + (5 \times \frac{1}{10})$$



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The value of the 6 is 60,000.



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100,000.8



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one hundred thousand
and eight tenths



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$$(1 \times 100,000) + (8 \times \frac{1}{10})$$



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The value of the 8 is 0.8.



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1,300,407,432.58



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one billion,
three hundred million,
four hundred seven thousand,
four hundred thirty-two
and fifty-eight hundredths



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$$\begin{aligned} &(1 \times 1,000,000,000) \\ &+ (3 \times 100,000,000) + (4 \times 100,000) \\ &+ (7 \times 1,000) + (4 \times 100) + (3 \times 10) \\ &+ (2 \times 1) + (5 \times \frac{1}{10}) + (8 \times \frac{1}{100}) \end{aligned}$$



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The value of the 5 is 0.5.



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471,082,210.62



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four hundred seventy-one million,
eighty-two thousand,
two hundred ten and
sixty-two hundredths



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$$\begin{aligned} &(4 \times 100,000,000) + (7 \times 10,000,000) \\ &+ (1 \times 1,000,000) + (8 \times 10,000) \\ &+ (2 \times 1,000) + (2 \times 100) + (1 \times 10) \\ &+ (6 \times \frac{1}{10}) + (2 \times \frac{1}{100}) \end{aligned}$$



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The value of the 6 is 0.6.



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61,034.02



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sixty-one thousand,
thirty-four and two hundredths



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$$(6 \times 10,000) + (1 \times 1,000) + (3 \times 10) \\ + (4 \times 1) + (2 \times \frac{1}{100})$$



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The value of the 2 is 0.02.



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5,924.07



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five thousand,
nine hundred twenty-four
and seven hundredths



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$$(5 \times 1,000) + (9 \times 100) + (2 \times 10) \\ + (4 \times 1) + (7 \times \frac{1}{100})$$



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The value of the 7 is 0.07.



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Represent the value of the digit in whole numbers through 1,000,000,000 and decimals to the hundredths using expanded notation and numerals.

- 1 Laurie wrote 3,766.16 on a piece of paper. She turned the paper upside down and showed her little brother the upside-down number. Her brother laughed and said the word *giggle*. How is 3,766.16 written in expanded notation?
- Ⓐ $(3 \times 1,000) + (7 \times 100) + (6 \times 10) + (6 \times 1) + (1 \times \frac{1}{10}) + (6 \times \frac{1}{100})$
- Ⓑ $(3 \times 100,000) + (7 \times 10,000) + (6 \times 1,000) + (6 \times 100) + (1 \times 10) + (6 \times 1)$
- Ⓒ $(3 \times 10,000) + (7 \times 1,000) + (6 \times 100) + (6 \times 10) + (1 \times 1) + (6 \times \frac{1}{10})$
- Ⓓ $(3 \times 1,000) + (7 \times 100) + (6 \times 10) + (6 \times 1) + (1 \times 10) + (6 \times 100)$
- 2 A human heart beats about one hundred thousand times a day. That means that it beats about one billion times in $2\frac{1}{2}$ years. What is the correct way to show in expanded notation the number of approximate times a human's heart beats in $2\frac{1}{2}$ years?
- Ⓐ $1 \times 1,000,000$
- Ⓑ $100,000 \times 10,000$
- Ⓒ $1 \times 1,000,000,000$
- Ⓓ Not here

- 3 The temperature of a candle's flame is about $1,800^{\circ}\text{F}$. How is this number written in expanded notation?

(A) $(1 \times 1,000) + (80 \times 100)$

(B) $(1 \times 1,000) \times (8 \times 100)$

(C) $(1 \times 1,000) + (8 \times 100)$

(D) $(1 \times 18) + (0 \times 0)$

- 4 The number 1,083,901,420.49 can be expressed as —

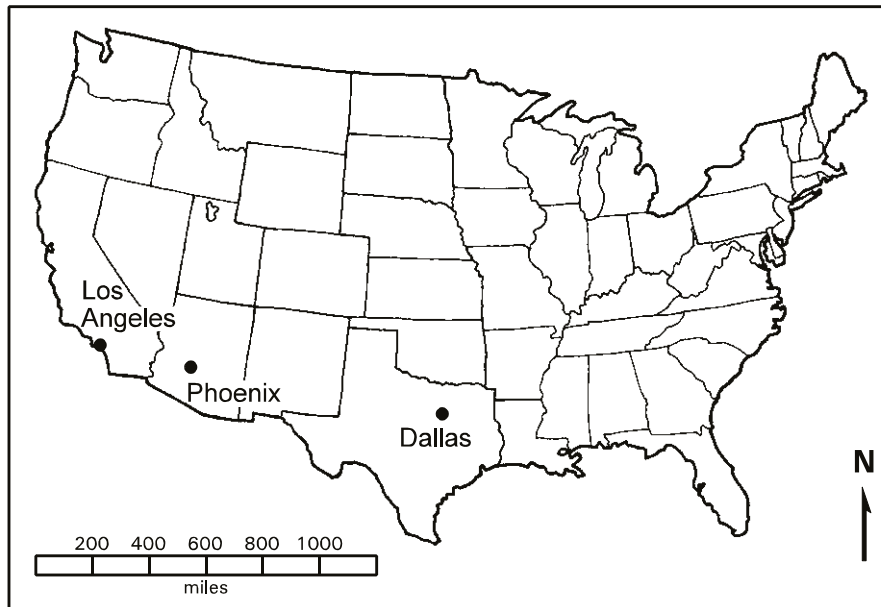
(A) $(1 \times 1,000,000,000) + (8 \times 100,000,000) + (3 \times 1,000,000) + (9 \times 100,000) + (1 \times 10,000) + (4 \times 100) + (2 \times 10) + (4 \times 0.01) + (9 \times 0.001)$

(B) $(1 \times 1,000,000,000) + (8 \times 10,000,000) + (3 \times 1,000,000) + (9 \times 100,000) + (1 \times 1,000) + (4 \times 100) + (2 \times 10) + (4 \times 0.1) + (9 \times 0.01)$

(C) $(1 \times 1,000,000,000) + (8 \times 10,000,000) + (3 \times 1,000,000) + (9 \times 10,000) + (1 \times 1,000) + (4 \times 100) + (2 \times 10) + (4 \times 0.1) + (9 \times 0.01)$

(D) $(1 \times 1,000,000,000) + (8 \times 10,000,000) + (3 \times 1,000,000) + (9 \times 100,000,000) + (4 \times 100) + (2 \times 10) + (4 \times 0.1) + (9 \times 0.01)$

- 5 Caroline is planning a trip from Dallas to Los Angeles. The distance from Dallas, Texas, to Phoenix, Arizona, is 1,063.89 miles. The distance from Phoenix, Arizona, to Los Angeles, California, is 372.26 miles. What is the distance from Dallas to Los Angeles in expanded notation?



- (A) $(1 \times 1,000) + (6 \times 10) + (3 \times 1) + (8 \times 0.1) + (9 \times 0.01)$
- (B) $(1 \times 1,000) + (4 \times 100) + (3 \times 10) + (6 \times 1) + (1 \times 0.1) + (5 \times 0.01)$
- (C) $(1 \times 1,000) + (4 \times 100) + (3 \times 10) + (6 \times 1) + (1 \times 1) + (5 \times 0.1)$
- (D) $(1 \times 1,000) + (4 \times 10) + (3 \times 1) + (6 \times 0.1) + (5 \times 0.01)$
- 6 The speed of sound in air is 343 meters per second. This is almost $3\frac{3}{4}$ football fields every second. What is the value of 4 in 343?
- (A) 0.04
- (B) 0.4
- (C) 4
- (D) 40